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PSYCHOLOGY AND SCIENTIFIC METHODS

POSITIVISM IN ITALY[1]

THE book by Professor Marchesini is an excellent exposition of Ardigò's philosophy. *Verum ipsum factum:* such is the motto of Italian positivism, which is not a thing of to-day, nor a derivation of French or English philosophy, but a genuine product of Italian thought. In fact, positivism has in Italy a long and brilliant tradition, from the time of the Renaissance to our day. Pomponazzi, Leonardo da Vinci, Telesio, Bruno, Campanella, Vico, can be considered as the forerunners of modern positivism; experiment and fact were, in their opinion, the true and only foundation of scientific certainty. The recorded phrase was the motto of G. B. Vico, the founder of philosophy of history; but, of course, it receives a different interpretation in the doctrine of Professor Ardigò, because fact, which according to Vico is simply a revelation of, and the means of obtaining, a higher truth having an independent existence, is, according to our modern philosopher, truth itself. "Fact, be it physical or psychical, is divine: principle is human," says Ardigò. Physical facts are, not less than psychical facts, states of consciousness. The distinction between self and not-self, equally real as psychical data, is the result of the association of feelings, which in themselves are quite indifferent, and only in the course of experience group themselves into the two worlds of matter and spirit by means of the two processes of autosynthesis and heterosynthesis. But, although this distinction between subject and object is a product of experience, and feeling is the one element of universal reality, it is impossible to reduce the one to the other, and to affirm, *e. g.*, the reality of subject without affirming also the reality of object, which is its essential correlative. Perception (external sensation) is the absolute proof of the reality which we call external. Thus are materialism and idealism equally excluded, and a positive realism

[1] "La vita e il pensiero di Roberto Ardigò," by Giovanni Marchesini. Milano: Ulrico Hoepli, 1907, pp. 388.

"Dottrine e fatti," by Bernardino Varisco. Pavia: Succ. Bizzoni, 1905, pp. 158.

affirmed, which obliges us to conceive an indeterminate psychophysical reality (*l'indistinto psico-fisico*) as substratum of the physical and psychical worlds. Everything in nature is subject to the law of change from a state of indeterminateness to a state of determinateness (not to be confused with Spencer's change from homogeneity to heterogeneity); every fact is something indefinite in relation to the succeeding moment, and something definite in relation to the preceding moment, so that the concept of a psychophysical substratum appears as a positive, scientific hypothesis; nay, as a necessary limit of inductive knowledge, and a natural result of experience.

Such is the theory of Ardigò. But, first of all, it does not seem possible to escape from agnosticism, for the reason that the law of change implies infinity. The distinguishing process, logical and natural at the same time, follows the so-called law of the infinite, which is the law of intelligence. The regression from distinctness to indistinctness has naturally no limits: there remains always a residuum, not specified, which appears beyond what is specified. This residuum, according to Ardigò, has no transcendental character, because it is nothing but the fact itself of the psychological function, as it appears in experience: the infinite is "the rhythm of intelligence." So the psychophysical reality is not the last term at which thought arrives, but it presupposes another term, in relation to which the indistinct psychophysical reality is itself something distinct: a term which is *unknown*, says Ardigò, but nevertheless positive and natural. But would it not be more appropriate to say *unknowable*? If knowledge implies the distinction between subject and object, how can we know what is prior to such a distinction—nay, how can thought conceive in their "dynamical continuity," which is the law of infinite nature, the numberless series of terms which precede that distinction? All we can know about them is that they must be in some way related to the present distinct elements of reality, or actual experience.

The only way out of the difficulty seems to be the admission that sensation is the only element of knowledge, as of reality, and that to feel is also to know; so that the psychophysical substratum would be something sensational, and the infinite distinguishing process always a continual change from one form of feeling to another. Such, indeed, seems to be the theory of Professor Ardigò. But such a theory would be rather idealistic than realistic in its consequences. It does not seem possible from a sensational point of view (notwithstanding the great difference between the ancient and this new sensationalism with its ideas of continuity and activity) to assert the objectivity and concrete reality of a physical, external world. Nor does the

doctrine of the indifference of sensations, which can be equally subjective and objective, help us towards a solution of the problem. Feelings can not be indifferently grouped with the external or the internal world. Certainly there are feelings, like heat and cold, which may be ascribed to an external body or to our own body. Certainly the distinction between subjective, internal, spiritual, and objective, external, material, depends upon the difference between peripherical and central organs. But the empirical origin of a distinction does not explain its value. The fact that we can not have the idea of a thing without having had the perception of it can not justify us in treating that duality as a mere product of experience. Nor can the fact that certain feelings may be included *by us* indifferently in the group of self or that of not-self justify the conclusion that all feelings are *really,* in their nature, indifferent. The truth seems rather to be that in every feeling, in the most simple as in the most complex, we find a subjective and an objective element.

The different solutions of the object-subject question are what distinguish the different forms of positivism. Perhaps the future historian of positivism will distinguish a naturalistic stage (Comte), in which psychology has no part and the subject disappears in the object; an agnostic stage (Spencer), in which the relation between subject and object is accepted as ultimate, but—although the importance of psychology as an independent science is fully recognized—the subject seems devoid of any activity of its own; a psychologic stage (Ardigò), in which there is an attempt to explain all reality only with psychical elements, sensations; and, finally, a realistic stage, in which the ultimate elements of reality are considered as physical and psychical at the same time—physical in their external relations and psychical in their inner being. To this last stage of positivist thought must be assigned the philosophy of Professor Varisco, who, applying Kant's critical point of view, has given new life to positivism, and shown the possibility of explaining scientifically and monistically the relation between subject and object, maintaining, nevertheless, their mutual irreducibleness.

"Positivism is the only philosophy which there has ever been" (p. 6). The essence of positive philosophy, according to Professor Varisco, consists in taking science as the only datum and criterion of philosophic speculation; and all philosophies, even before positivism, are worth something only in so far as they have a solid foundation in scientific knowledge. Science has in great measure a problematic character, and will never arrive at that certainty which only *immediate* knowledge, the *primitive* knowledge included in every sensation, in every *Erlebniss,* can possess; but, while this remains abso-

lutely closed up in individual consciousness, *reflex* knowledge can be communicated to other people, and is capable of indefinite perfection. In any case it is the only knowledge at which philosophy can arrive; so that a serious philosophy must be founded on science. Now science implies necessarily determinism; and to refute this doctrine it would be necessary to show that physical energy is not permanent, which is impossible. All we know about the conditions in which psychical phenomena manifest themselves obliges us to assume that their manifestation and our existence are dependent upon physical phenomena; that is to say, those phenomena would not manifest themselves nor would we exist if certain physical facts had not taken place; and, since it is impossible in view of the conservation of energy to destroy a physical fact by destroying only its psychical antecedents, one must accept the doctrine of physiopsychical determinism (p. 27). Nor by this is meant that consciousness is a result of the physical world; it means only that physical facts are those which take place *between* several subjects, and psychical facts are those which take place *in* a subject (p. 24). The ultimate elements of reality, the monads, possess a psychical *potentiality*, which is the necessary substratum of consciousness (p. 26).

From this original potentiality evolves gradually all conscious life. The superiority of man to brute does not depend upon some special psychical faculty or activity possessed only by human beings. Although between the brute's *feeling* and man's *assertion* there is a specific difference, and not only of grade, this is no proof that the original psychical conditions in brute and man are not the same. Indeed, the special character of psychical life of producing absolutely new results, when psychical facts connect themselves in given circumstances with certain other facts, and the biological law of transformation, make it probable that those conditions are in every case the same; so that the transition from feeling to reasoning takes place naturally (p. 42). It is by means of volitional acts that immediate or primitive cognitions, consisting simply in the actuality of psychical facts, are transformed in reflex knowledge (p. 65), because only in virtue of volition does the subject acquire real self-consciousness and arrive at the knowledge of reality.

The assertion that a reality independent of myself exists, is nothing but the recognition or immediate expression of a fact, the fact that in sensation the subject feels itself conditioned by something else, apprehends itself as conditioned (p. 119, note). The existence of an external reality is shown by the unintelligibility of causal connections, by their independence of mental connections. In every act of foreknowledge is implied the principle of causation, which can be

expressed as follows: If the same circumstances will reproduce themselves, the same facts will happen again (p. 91). But this is not a principle of reason, evident in itself: if it were so, it could not give us any knowledge of external reality, because "reasoning implies the absolute unchangeableness of concepts," while in reality "something changes" (p. 96). Reason, whether it undertakes or not to know reality, whether it is occupied in pure or in applied reasoning, possesses the notion of causation, but is incapable of saying anything about its value as cognition (p. 98). That principle, like every other knowledge of reality, is not a product of reason, but a result of experience. It follows that of its future validity we have no apodictical certainty. Nor can we ascribe to it apodictically any grade of probability; to establish a probability, one must start from something certain (p. 120). But the impossibility of giving a rational justification of the principle of causation does not diminish the value of physical science. We must abandon the false assumption that there is only one kind of knowledge, *i. e.*, rational knowledge (p. 122). Although we can not explain physical necessity, we know, nevertheless, that physical facts are determined by circumstances and by the facts immediately preceding (p. 138), and this remains an indestructible datum. We can not know the *why* of the sequences of facts (such a question is itself absurd), but we can study the *how*, and this is the object of physical science. It is not reason which has created the belief in a certain class of expectations, those which constitute science; but this belief is not less justified because it is founded on an inevitable necessity of fact. Hume's criticism of the principle of causation does not necessarily lead to skeptical conclusions. Laws are our conceptions of the sequences of facts, conceptions which can change without any change occurring in those facts; but this shows only that laws are relative to our apprehension of physical facts, and that external reality is independent of rationality: it does not show at all that in this external reality there is not some physical necessity, and that science can not verify laws. So that "the attempt to apply physical laws for excluding determinism, and for giving a rational explanation of a reality, which, whatever be its origins, appears to us as something profoundly irrational and inexplicable, resolves itself into a vicious circle" (p. 152).

The irrational and inexplicable character, which Professor Varisco ascribes to the external reality, has nothing to do with the unknowable of agnosticism. It means only that physical reality does not depend upon reason, that it is a datum which reason finds opposing itself and must accept as something existing out of consciousness.

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THE FUNCTION OF PHILOSOPHY AS AN ACADEMIC DISCIPLINE

IT is a deplorable fact that the department of philosophy does not usually occupy the place in our universities that it ought to have. It does not command the confidence of the other departments, but is regarded with dislike and distrust. Nor do the students, as a rule, think more highly of it; while in the mind of the general public philosophic thinking is a synonym for futility. This can not be remedied unless there comes to prevail generally among teachers of philosophy an altered conception of their proper work. The difficulty is, it is true, complicated by the diversity of views as to the nature of philosophy itself. Some think that philosophy is a synthesis of science, and results from the putting together of the results of special researches in all realms; that its task is the unification and organization of knowledge. Others contend that it has its own special sphere, and identify it with logic, epistemology, ethics, or metaphysics. Upon this controversy, of course, I offer no new arguments; I merely mention the subject for the purpose of explicitly admitting that all these disciplines are important, and that researches ought to be carried on in all these provinces with the utmost energy. I do not insist that they fall within the realm of science, although I really think so, and am even willing that all of them shall be called philosophy. It is enough for my purpose to make the point that in university teaching the emphasis should not be upon any of these, but that philosophy should magnify its unifying and synthetic function.

In dealing with the student it has a perfectly definite task to perform. This task is that of helping him to organize the content of his mind, and to attain to a comprehensive world-view. If the mind is to grow as it should, two things are essential: there must be some scheme by which the mental life can be organized, and this scheme must be flexible, capable of revision. A great many enter college without any general theory of life, and they there acquire a certain amount of information in detached masses: but failing to find any means of coordinating and relating together the things they learn, they finish their formal education with their mental content almost as unorganized and jumbled together as when they began it. Others bring with them a philosophy in the shape of a religious theory; but since this theory seems to them essentially inflexible and not easily adjusted to facts which can not be doubted, it is reluctantly surrendered. The result is a sense of loss which is deeply felt, but not easily avowed. Others still retain their childhood view

with great tenacity, but, not being able to find in it a place for the new facts, carefully keep it separate and apart. Here, too, there is a deplorable schism in the inner life. The man is never wholly there in his thinking on any subject. When the facts of science and the cherished theory of life are felt not to agree, not only does the mind fail of happiness, but it also necessarily fails to attain the highest development and efficiency.

To whom, then, in his real need, can the student look for help except to the teacher of philosophy? A tentative world-view is necessary in order that one's isolated bits of information may be brought into relation. One needs a place in which to put the things he learns. Such an organization as results from the formation of a provisional scheme, a flexible theory of the world, is a necessary condition of the normal unfolding of the mental life. The best method of meeting this need only experience can determine. Whatever plan is used, provision must be made for revision. The ideal organization of the mental content is a sort of republic which can grow both by the development of its component states and by the admission of new states. In such a unitary world-view the sciences would have their places, and the cosmic outlook would alter as these sciences grow. Spencer's ideal of philosophy would then be the guiding star: "Science is partially unified knowledge: philosophy is completely unified knowledge." T. H. Green's definition is equally good: "Philosophy is a progressive effort toward a fully articulated conception of the world as rational." As such it is a process, a series of approximations extending through the whole period of mental development. But without some comprehensive theory to start with, how can such a development begin? The man who is to pass through an ideal intellectual career must constantly reorganize his thinking, but he can not even enter upon such a career without some provisional organization. The view here advanced is that it is the specific and primary business of the philosophic department to assist the student to that unification of his mental life, to that organization which is the condition of growth.

Now, the philosopher can not do this work if he is himself merely a specialist, if he is absorbed in the technical criticism of minor matters in logic or psychology, or in epistemological quibbles. Whatever be his special training, he should be one of the broadest men in the university. Ideally, he should have a good foundation in one of the physical sciences—physics, for instance; and also in psychology, since the latter deals with sense impressions and their interpretation; that is, with the channels through which the other sciences get their data, while without some knowledge of biology he is, as a

psychologist, of course not properly equipped. To be sure, the philosopher can not know all science, but neither can the chemist know all chemistry. But it is perfectly possible for one mind to be acquainted with the leading conceptions of the various sciences, and to know what their larger problems are, and it is precisely with these that the teacher of philosophy is concerned. In his synthetic function the teacher may favor any scheme that the student can most easily grasp, but it must above all be one that can be revised, and one that does not disparage or depreciate science. As an example of what the philosopher's temper ought not to be, I would merely refer to Ward's "Naturalism and Agnosticism." A great part of what the author says is perfectly true, and yet, though he denies that he disparages science, the spirit of disparagement is there. And no philosopher who writes and speaks in that temper can hope that his department will ever become the clearing-house of the sciences in his university. Yet this is a matter of vital importance to him, since he can not dispense with the cooperation of his colleagues. He needs them as much as they need him. The present lack of confidence and of cordial cooperation between the philosophers and the men of science is evidently bad for all concerned. The physicists and chemists, for instance, are discovering, now that they have begun to examine the substructures of their sciences, that they have entered the realm of philosophy, and they will find out that they can not safely ignore the thinkers who have preceded them. When they affect contempt for all previous efforts, the result in the case even of the most brilliant specialists is not conspicuously successful; witness the raw psychology and the crude substitute for metaphysics of so able a man as Karl Pearson. It is said that every man at some time in his life thinks that he can preach; and there is a similar native confidence in the ability to philosophize. The philosophers and preachers are neither envious nor jealous, and have no objection whatever to the ambitious efforts of the novices; but their experience in such cases has not destroyed their faith in the value of training in this, as in other fields.

On the other hand, the teacher of philosophy can only do his work by the help of broad-minded men in other departments. The ideal situation is one in which the teacher of every science leads the student to see the larger relations of the subject, especially with the disciplines that are closely akin. The relations of physics, chemistry, astronomy, biology, and psychology ought to be suggested by the specialists in those fields. It is not necessary for them in doing this to give special lectures on these general themes in the philosophic lecture-room, although it would be a happy thing if they

did so. The various fields of investigation are more or less arbitrarily defined, the isolation being merely for convenience of research and teaching, and not absolute. If the philosophical teacher had the sympathy and cordial cooperation of his colleagues, if they made their students feel that each science is a part of philosophy, an organic constituent of the one body of truth, his own work of suggestive synthesis, of organization and systematization, would be performed with greater ease and thoroughness. The result would be gain for the specialists as well as for those whose business is with the problem of the whole. For it is a well-known, but not sufficiently appreciated, fact that the current of interest flows downward, and that no one is more eager for facts than he who wants them, partially at least, for the light that they throw upon larger problems, such as that of man's place in the cosmos. And it is precisely because they ignore these larger considerations that stimulate the interest of the student and enable him to see the bearing of their researches, that some of our best men of science are such poor teachers. Facts have value because of their significance, and they are significant because they affect some interest. And the great, permanent, research-inspiring, and research-sustaining interest is the philosophic. Utility and commercial value are important and worthy considerations, but they alone can not beget the enthusiasm for knowledge and the ardor that sustains those laborious investigations which are such important factors in our civilization. Philosophy, as Plato understood it, the endeavor of the mind toward such a view of the whole as will enable it to orient itself and to see human affairs in proper perspective, is, therefore, a great fertilizing power, and deserves to be nourished for the vitality that it gives to science.

It must not be forgotten that philosophy, to have constructive value, to render the essential services which naturally devolve upon it, but which it does not now adequately perform, must emphasize the unity of science, not undermine it. It may properly make plain that human knowledge is a construction, but it deserves the contempt it receives if its final effect is to impair confidence in the validity of those inferences which we have to make in order to live. Moreover, philosophy is more a matter of teacher than of subject. As there is no magic in Hebrew literature through which readers of it are infallibly made good, so there is nothing in the history of philosophy which, regardless of the way in which it is taught, inevitably produces those large, judicial, comprehensive views at which philosophic instruction aims. It may be presented in such a way as to leave the impression that it is the record of a series of futile and profitless efforts. Yet, as we know, it is really a history

of the evolution of the great ideas of the human race, of the development of that form of life which we call intelligence; and, properly handled, nothing is more concrete or has a greater culture value.

It has long seemed to me that as a means of effecting that organization of the mental life which is a condition of normal growth, the student should be encouraged to study some one system well. If he becomes for a time a disciple, so much the better; for he will then know one system from the inside, and he will have set up a pair of ordinates in the flux, by reference to which all other systems can be understood. He who never sees plausibility in any world-view, who has no sympathy with any, understands none. But he who has once entered into a system, can then get at least partially out of it, and make the necessary concessions to other views, so that the danger of partisanship and fanatical discipleship will be escaped. He who follows this method must in each case decide on the system to be used as a point of departure. If he selects one of the physical or mechanical philosophies, his task is to supplement or expand it so that life, mind, and purposive action shall have a natural place in it. Human life is obstinately teleological, and since men and women are parts of nature, and not importations from some realm beyond the universe, their aspirations, their foresight, their endeavors after rational conceptions and rational conduct, can no more be ignored than matter and motion. The physical philosopher must, therefore, expand his scheme so that all these shall be included.

On the other hand, if one begins with one of the great moral philosophies, that of Aristotle, for instance, the problem is reversed; it is to find a place for physics. In any event, there is no question of final solutions. What is to be aimed at is the production of an awareness of the cosmic setting of human life, a widening of the intellectual horizon to the utmost, a knowledge of past efforts at unitary views sufficient to serve as a protection from philosophic diseases, an understanding of what the great problems are, and the awakening of the deathless desire to know. For among all the things that are good, there is nothing better than the lifelong endeavor of the mind to get its bearings in the universe, than man's search for the thoughts that give dignity to human life. If we discern the time, if we conceive the occasion rightly, we shall retire into the background, or hand over to the special sciences, the greater part of these minute mathematical, logical, and epistemological researches which are now so prominent, and magnify our proper function, which is to assist in the development of that finest flower of culture, the philosophic mind.

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DISCUSSION

ULTIMATE HYPOTHESES IN PSYCHOLOGY

THE sciences of physical nature, with their laws of motion and conservation and the ether, have reached a much higher degree of organization than psychology, and their methods are consequently more analytic. It is a goal of development in the scientific view of the world to be able to describe all phenomena in a single set of terms whose meanings are interdependent. No doubt it is too soon to hope that the science of psychology and the disciplines related to her possess such ultimate hypotheses. The attempt to formulate them prematurely and thus change the plodding method of synthetic generalization into eagle-winged analysis is as yet likely to fail. Too few of the facts are in and too few of those which have been gathered are thoroughly understood.

It is notorious, however, that every science works and grows, from its earliest beginning under the rubrics of some far-reaching generalization or other, and as the sciences nearly all sprang from philosophy, their original generalizations were usually taken from the rich thesaurus of the earlier discipline. Later, they have lent their aid to each other in this respect.

It means a step forward when these earlier, more or less unconsciously accepted, conceptions become the objects of conscious analysis and criticism. Such steps were taken in psychology when the doctrine of mental faculties was criticized and rejected, when the idea of a substantial soul was revised, when the issue was raised between structural and functional psychology, when the term consciousness was first brought into the focus of discussion, when the reflex arc concept was examined with reference to its availability for purposes of organization in psychology, and when such terms as knowledge, feeling, and will are more exactly defined. Professor Calkins's papers on "Psychology, What is it About?"[1] and her other papers[2] on related topics belong to this field of discussion.

In the sciences of physical nature the demand for comprehensive generalizations has led to three types of conceptions, namely, to conceptions of nature as discrete, as continuous, and as a totality. The atom theory, the ether hypothesis and the law of conservation may be said to represent these lines of development. With the introduction of the atom theory into modern physics came also the concept of force based on the notion of motion. What had been the con-

[1] This JOURNAL, Vol. V., p. 673, and Vol. VI., pp. 12, 64, 113.

[2] "A Reconciliation of Structural and Functional Psychology," *Psychological Review*, Vol. XIII., and *Der doppelte Standpunkt in der Psychologie.*

servation of motion became the conservation of force. The resulting dualism remained a practically unsolvable problem until the doctrine of an ether was formulated and the atom was conceived as a form of motion in this universal and continuous medium. It may throw some light on the problem of ultimate generalizations in psychology if we ask whether analogous results are to be reached in its field. Psychologists have conceived sensations and sought to show how by complication and fusion, association and contrast, sensations become the relatively more concrete and complex contents of experience. We have doctrines of relational and affective elements which supplement the sensations in the description of states of consciousness. Psychology has also conceived all things mental as functions and the mind as a system of functions, analogous to the physical doctrine that all matter is a form of motion. We have, again, a conception of consciousness as a sort of continuous medium in which sensations and functions are forms and modifications. The principles of individuality and totality are evident in such conceptions as mind and self. It looks as though discreteness, continuity, and totality are logical demands which we more or less unconsciously seek to satisfy in the organizing conceptions of psychology no less than in physics, and I take it that the fundamental conceptions of the science of mind are not mere analogies based on the older and more highly organized physical sciences, so much as necessary results of the attempt to conceive sentient life scientifically. For science proceeds by analyzing the complex into elements no less than by reducing to a single law whatever admits of synthesis, by finding continuity where there are apparent gaps no less than by finding gaps where there is apparent continuity, and by organizing its results into unique totalities. It is not possible to prescribe ideals for any special science further than to point out the laws of consistency in accord with which they will be found, but in psychology considerable progress in this direction has already been made. The science of psychology is to-day one huge welter of conflicting demands, among which the most recent or the loudest voice is most apt to receive attention.

This is not an epistemological or metaphysical problem so much as one in the logic of psychology, and we hope it may not be unwelcome to the author of the papers on, "Psychology, What is it About?" if we set down here a series of reflections on her discussions. In the first place, psychology is defined in these papers as the science of self, and we understand by that term the individual human self, rather than selfhood as a general aspect of experience. All studies of sentient life below that of man must be based on the

psychology of self and be controlled by it. That this has not so far been the case is evident in the studies of comparative and genetic psychology. This may be due to the undeveloped state of genetic and comparative psychology, and in the end it may prove that continual reference to the individual self will be a great aid in this field. But it needs to be pointed out that in making the individual self the ideal of psychology we are making it our aim to describe a *whole* rather than any special aspect of many wholes, and so far at least our aim is philosophical rather than scientific. The significance of this fact seems to the present writer evident, and especially so when we ask what descriptive value the term self would have in dealing with the process of perception, or impulse, or any other special topic of psychology.[3] The self, so defined, is a principle of neither discreteness nor continuity. If the self be conceived as a special form of activity or special type of function analogous to Descartes's vortical conception of the physical universe or Lord Kelvin's vortical theory of the atom, the conception would have a descriptive value in all problems in which the self-thought or the self-function is a factor. But in the papers before us the self is rather a complex whole which includes all psychic functions.

This point may be briefly stated in the form of a question, *Is* the self a process, or does it *have* processes? If by the self is meant simply the self-thought, a particular process among the many processes which make up the psychic life, it will have descriptive value. But in this case the psychology of self will constitute only a special chapter of the science. This chapter deserves a much larger place in psychology than the majority of writers have seen fit to give it, and it is one of the merits of Miss Calkins's "Introduction" that it is in this respect an exception to the general rule. The origin and growth of the self-thought and its controlling function in deliberation, will, and the ideal emotions constitute one of the most interesting and, for the entire group of *Geisteswissenschaften*, one of the most important of all the chapters of psychology. If, on the other hand, the self is conceived, not as a process or function, but as that which *has* processes, if it be conceived as that of which all processes are the predicates, the present writer is at a loss to see what advantage it can have over a number of other convenient rhetorical or grammatical devices, such as the psychic life, consciousness, the soul, the individual, etc. In this sense we should use the term only as the term nature is used in such expressions as natural selection or the laws of nature. And even then, is it not apt to prove misleading? Is is not apt to prepossess the minds of students with uncritical metaphysics?

[3] For a similar criticism by M. F. Washburn, see this JOURNAL, Vol. II., p. 715.

That Miss Calkins has in mind a philosophical rather than a scientific use of the term self was first suggested to us by the passage in which she replies to the criticism of self-psychology by Angell, that it places a needless gulf between "the self as mind and the self as body for the crossing of which we are forthwith obliged to spend much needless energy, as the gulf is of our own inventing."[4] The reply reads in part, "As psychologists, once more, we are not concerned with the philosophical problem of the relation of body and mind; we take for granted the existence of the two, and their relation, on the ground of observation behind which we, as *scientists*, have no business to probe."[5] I understand that the term self is here used as interchangeable with the term mind, and body in that case must be one of the meanings of the term not-self. "As scientists, we have to start out from the standpoint of every-day adult consciousness: and for this the distinction between mind and body is already clearly made." Now all this reads like philosophy. If we take the plain man's shifting dualism of mind and body and put it through a fixing bath out of which it comes a distinction between self and body, we certainly introduce into psychology the control of an organizing conception which will influence the phraseology and the classifications of the science from beginning to end, and we do this without first taking up for careful criticism a popular and naïve dualism of very doubtful validity. It is one of the problems of psychology to trace the origin and growth of body and mind as ideal constructs. It is one of the problems of philosophy to investigate the validity of these constructs. It is another of the tasks of psychology to describe the genesis of the dualism of self and not-self. Indeed, we go much farther than the plain man does when we identify self with mind and separate it in conception from the body. The plain man sometimes speaks of his body as a thing which he possesses, and more frequently still he speaks of another's body as belonging to that other. But where he refers to his own body in this way once he refers to it many times as an identical portion of himself. It is much easier and more natural to distinguish between the mind and the body of *another* than to distinguish between the two in one's own case, and every one must have observed that we speak of ourselves as having minds and of losing our minds just as easily and naturally, to say the least, as we speak of ourselves as having bodies or of losing our bodies. What shall be said of a man's identifying himself with his bank account, his bonds or his railroad system? An Illinois farmer remarks, "The rains haven't hurt me

[4] Angell, "The Province of Functional Psychology," *Psychological Review*, Vol. XIV., p. 82, note.

[5] This JOURNAL, Vol. V., p. 15.

yit," meaning that they have not washed the soil off his land or deposited sand on the top of it. Similarly a Congressman identifies his constituency, the people who support him with their votes, with himself. Any attempt to rob him of their patronage is an attack upon himself. It is a psychological fact that I identify with myself, not only my body, but whatever belongs to me, whatever I have produced, my family, my friends, my scientific theory and religious hopes, etc. As psychologists, ought we not to keep within the empirical use of the term self? If we go beyond the self as experience and by conceptual delimitation exclude from it the experience of body and the material world generally, are we proceeding as scientists or as philosophers?

But Miss Calkins holds that "all consciousness is self-consciousness," although of course the self is not equally explicit in all states of consciousness. Only in the sense of "the ever-present, inchoate self-consciousness of each experience" is the self omnipresent in psychic life. In this sense "one never is conscious at all without an awareness, however vague, confused, unanalyzed, and unexpressed, of oneself-being-conscious."[6] In an article entitled, "Feeling and Self-Awareness,"[7] the present writer once argued that self-consciousness is vaguely and implicitly present in all feeling, and, since all consciousness is affective, in all consciousness. But this vague self-awareness of feeling is identical with the immediate experience of value. In the emotion of fear, there is an immediate sense of value and, *logically speaking*, all value involves a point of reference which we may call the self. In the emotion of fear, however, the self is not involved as an object of consciousness, and the self-reference in it is simply the finality of all impulse. We wish to emphasize the fact that this immediate experience of value, this purposive view of the object of consciousness, is a matter of universal experience and a matter with which psychology especially has to do. Whether it is this fact that Mr. W. Boyce Gibson[8] charges Miss Calkins with neglecting, we can not be sure. Whether it is the psychological teleology of all conscious processes, emphasized by Spencer and the school of biological psychologists, is not clear. In the psychology of Spencer psychological terminology is often little more than a fish-net to cover the nakedness, or a series of plasters to fill in the gaps, of biology.

However this may be, the teleology of all mental states and processes is one of the distinctive marks of psychological data. In its

[6] This JOURNAL, Vol. V., p. 68.

[7] *Psychological Review*, Vol. IX., p. 570, f. 1.

[8] In his review of "Der doppelte Standpunkt in der Psychologie," *Mind*, 1906, pp. 106 ff.

universal form it is nothing but purposive impulse, and yet it is just possible that in this immediate experience of value we are to find the chief differentia of the data of psychology. If this were all that Miss Calkins meant by defining the subject as the science of self, there would be much to say in favor of her view. Psychology, from this point of view, would be the science which deals with the various contents of experience in so far as they possess immediate value. The data of psychology surely ought to possess some distinguishing mark, and here is a characteristic which falls entirely within consciousness and distinguishes psychological data from those of all other natural sciences. Not all values are immediate and not all immediate things are the exclusive data of psychology. Immediate values are the data of no science except psychology. To define psychology as the science of selves seems to make necessary much further exposition to make our meaning intelligible, and it assumes (what is not *prima facie* evident and what many are not ready to grant) that the immediate experience of value is an implicit experience of self. Self-consciousness, as an explicit reflective experience, is an experience of values—psychologically speaking, individuality seems to be a function of feeling—but not all immediate values can be described as self-consciousness without begging a question with reference to which unanimity of opinion does not exist, and without being guilty of the psychologist's fallacy of reading into the immediate experience of value distinctions which belong to a special form and stage of mental life.

Professor Calkins speaks of "the basal fact of psychology" as the self, "immediately known as persistent, inclusive, unique, and related."[9] A considerable portion of her third paper is devoted to the elaboration of these "positive characters."[10] "Every one admits . . . that identity can not be attributed to ideas . . . because these are by hypothesis evanescent and fleeting. It follows that identity is a character of the self. . . . But if one scrutinize the real meaning of the statement, 'memory—or reason, or will—is a persistent function,' one finds it to be simply this, that one and the same self at any time may remember, or reason, or will." "The self is, in the second place, not only persistent, but inclusive; it is, in other words, a complex of ideas, functions, experiences." "A third significant character of the self is uniqueness . . . experienced most clearly in our emotional and volitional consciousness." In the fourth place, "I think of myself not only as unique, but as related, not only as a this-not-another, but as a this-in-relation-with-another." This "immediately experienced self-relatedness" is a character to be

[9] This JOURNAL, Vol. V., p. 114.

[10] *Ibid.*, Vol. V., pp. 65–68.

admitted and not argued about by the psychologist. "I can not, indeed, describe or distinguish myself except in terms of my relatedness to other selves; if I drop out of my conception of myself the consciousness of being child, brother, friend, and citizen, I simply lose myself." "I wish to emphasize the truth that all these characters of the self are immediately experienced. Only as such, I hold, have we a right to use them in describing consciousness. For though psychology, like every science, deals with concepts reflectively formed, not with immediate experiences, yet the peculiarity of psychology is precisely this, that it has to do with the concept of *immediate experience.*"

We take the liberty of interpreting the last sentence in the light of the contributions which Professor Calkins has made to the science and literature of her specialty, where she seems to us to deal masterfully with some of the immediate aspects of experience denoted by the concept of immediate experience. Psychology is not an analysis and synthesis of concepts comparable with the points, the number series, the orders and group relations of mathematics. It deals with an objective order which it seeks to describe scientifically. As to the other contentions of the passages just quoted, however, we wish to point out that neither the persistence, the inclusiveness nor the relatedness of phenomena is ever immediate. They are not immediate in the case of a stone or a star, and just as little so in the case of self. The *processes of judging* that the self possesses these characters are immediate—that, unquestionably,—and it may be that the practise of psychological reflection has become so habitual to some of us that we sometimes confuse the immediacy of the process of judging with the immediacy of the object or content of judgment. The present writer could as easily accept the proposition that the immortality of the soul is an immediate deliverance of consciousness as that the persistence, inclusiveness, and relatedness of the self are immediate. It certainly is true that I can not describe or distinguish myself except as related to other selves, and also that the judgments expressed in the descriptions are as processes of thought immediate. The predicates of my *judgments about* myself are all relations which I sustain to others. But this means that my knowledge of myself, like my knowledge of my neighbor's self is mediate, not immediate. The immediate experience of the process of conceiving immediate experience is made up of certain sensations of touch and vision, certain feelings of relation, and certain affective qualities, but these are, of course, only a special instance of the aspects of experience denoted by the concept.

Perhaps the clearest and most definite concept of psychology is

that of sensation, the simplest value ascertainable by psychophysical methods. In Locke's theory of simple and complex ideas the sensation is an ultimate and irreducible element of knowledge, and it is so conceived by the majority of psychologists. Simple ideas are kinds of sensations or impressions. Newton, for example, thought that there are seven kinds of color sensation in the spectrum, but as some of these are derivable from other colors by mixing, the doctrine of three primary colors displaced the seven-color theory. Professor Titchener is right in saying that there are as many colors for psychology as there are distinguishable types of color value, and of these there are some 3,000 or more. Shall we say then that color experiences are really composed of these sensations? Certainly, but this does not tell the whole truth about the matter, because sensations are discrete and the spectrum is continuous. This large figure represents the number of acts of discrimination possible within the range of the spectrum, but the spectrum itself is a continuum of values in which points or lines of demarkation are arbitrary. Is the self of any value in the descriptive psychology of color? To say that colors belong to unitary complexes of experience called selves is to say just about as much (and as little) as to say that all atoms belonging to a unitary complex of processes called nature, that is, colors belong to conscious persons or selves conceived as centers of extra-psychological relationship, and as distinct totalities. Now there are two psychological problems which this conception of the self leaves entirely untouched: (1) what is the principle of continuity within the self? and (2) what are the elements into which its manifoldness is resolvable? Of course the definition of a science need not include its entire content, but it should include the differentia of the science.

As the principle of continuity within the self, we have become accustomed to the term consciousness. But is it consciousness or is it value? Perhaps some will say there is no difference, but we think there are differences. In the first place, consciousness is no longer an abstract noun, like roundness or smoothness, based on the character of being conscious which is predicable of sentient organisms. It is rather the name of an existence analogous to the matter which possesses roundness or smoothness. It is a thing possessing properties and relations such as the property of sentience and relations to the body. Value, on the other hand, is attributive to objects, and in making it the principle of continuity in psychology we should be eliminating from the science subjectivism in its most objectionable form. Again, value is a genuine aspect of all existences, while consciousness is not, and in making an aspect of existence the proper subject-matter of psychology we should be conceiving the science as all other special sciences are conceived nowadays. For

the special sciences deal with special aspects of all things rather than with special groups of things. Again, value admits of and suggests both a structural and a functional analysis, just as the ether does in physics, while the same can not be said with equal propriety of consciousness. Finally, in the world of values the self is either a special form of function, or a structure, just as the atom or any other discrete totality in the physical world is either a special form of change in the ether or a special structure.

Psychology so conceived would comprehend both the conditions and the manifestations of the immediate experience of value, as well as its actual contents. In short, it would include all that it at present includes, and furnish points of easy relationship to both biology and the *Geisteswissenschaften* which depend upon it. Nearly the whole of physiological psychology is comprehended in the antecedents (or conditions) and consequents (or manifestations) of value. The analysis of value and its natural history or growth, taken together, would comprehend a doctrine of elements, a doctrine of combining principles, a description of mental complexes of various types and a doctrine of the self or social consciousness. Indeed, psychology would be very much what Miss Calkins and others conceive it to be. Its definition and some of its terminology alone will have been slightly altered.

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REVIEWS AND ABSTRACTS OF LITERATURE

The Animal Mind. A Text-book in Comparative Psychology. MARGARET FLOY WASHBURN. New York: The Macmillan Company. 1908. Pp. 333.

The study of animal behavior can be attacked from two points of view, the physiological or mechanical, and the psychological. The one has for its aim an immediate mechanical explanation of the phenomena involved, the other an immediate psychological explanation. The former proceeds from known chemical and physical principles and is based upon concepts of matter and energy gravitation, chemical affinity, electricity, etc. The latter proceeds from psychological principles, established in the study of human mental activities, and is based upon concepts of psychic elements. While these two fundamental classes of concepts may eventually prove to be merely different aspects of the same reality, they are, in the present state of knowledge, certainly not mutually exclusive, as some prominent writers would have us believe.

Little is known about either of these classes of concepts. In the last analysis there is as much mysticism connected with the postulates upon

which physics and chemistry rest, as there is with those upon which psychology rests. I can, therefore, see no reason for considering research based upon chemicophysical laws in the light of reality, and at the same time relegating those based upon psychic elements to the realm of mysticism, as many are prone to do.

While there is at present no hope of a final explanation of animal behavior, we shall undoubtedly have a clearer understanding of the phenomena involved by attacking the problem from both the mechanical and the psychological point of view than we would have by restricting work to either to the exclusion of the other.

In the last few years there has appeared a considerable number of papers on this subject, some dealing with it from the one, some from the other point of view, and some fortunately comprehensive enough to include both. In "The Animal Mind," the author has reviewed and systematized these papers together with the more important of those of earlier dates, with the idea of bringing together all experimental evidence bearing on mental activities in animals below man.

In the first chapter, dealing with "The Difficulties and Methods of Comparative Psychology," it is pointed out that the only way open to investigate contents of consciousness in minds outside of one's self is to infer the character of mental states and activities from experiences related by means of language and bodily activity under given conditions. Such inference is, of course, more and more questionable as one proceeds from the higher organisms with language, structure, and behavior similar to those of man, to the lower without language and very different in structure and behavior.

In the second chapter, "The Evidence of Mind," the author considers various criteria which have been suggested as tests of consciousness, *e. g.*, response to stimuli, choice, adaptation to an end, variability, "a variation in behavior that shows definitely the result of previous individual experience," ability to learn, rate and kind of learning, and structure. All of these characters are shown to be inadequate in themselves as criteria of consciousness. "We know not where consciousness begins in the animal world. We know where it surely resides—in ourselves—we know where it exists beyond a reasonable doubt—in those animals of structure resembling ours, which rapidly adapt themselves to the lessons of experience. Beyond this point, for all we know, it may exist in simpler and simpler form until we reach the very lowest of living beings." The author does not definitely mention plants in connection with this conclusion. They are, however, included in the phrase, "lowest of living organisms"; and the arguments thus far presented can be applied to plants as well as to animals.

Chapter three is devoted to a comparison between the mental activities in amœba and paramecium, if there be such, and those in man. The author points out that if these simple organisms have a mind at all they can have not more than three or four qualitatively different conscious experiences, while a human being has "several thousand."

In chapters four, five, six and seven, the author deals with sensory discriminations, laying particular stress on the chemical sense and the senses of hearing and vision. The two following chapters are devoted to a consideration of space perception. In discussions on both sensory discrimination and space perception the author begins with the lowest group of animals and proceeds to the higher, briefly reviewing the literature on the subjects under discussion and picturing the mental states and activities of the various groups of animals, assuming in every case that they are conscious.

In chapters ten and eleven, it is shown that modification of behavior occurs in all living organisms. The chief difference between the lower and higher organisms with reference to this is largely a matter of degree and time-rate. In the higher the behavior can be modified much more rapidly and extensively than in the lower.

The final chapters of the book deal with the complicated psychic phenomena, memory, ideas, and attention. The author holds that while the reactions in the lower forms can be adequately explained without assuming "memory in the sense of having ideas of absent objects," the reactions, at least of some of the higher animals, indicate that they are endowed with memory in this sense, although it is a difficult matter to prove.

"Attention, in its simpler form, seems to be met with even in the lowest living organisms; but it seems unlikely that attention in the final form, in which the focus of attention is occupied by an idea or train of ideas, occurs among lower animals. While ideas are probably present to some extent in the minds of the higher mammals, they are hardly so far freed from connection with external stimuli that the animal can shut out the world of sense from its consciousness and dwell in a world of ideas."

In general the author shows that, while experimental evidence proves nothing with reference to the presence of consciousness, it seems to indicate that consciousness may be found in all animals, and that, with reference to complexity, the mental states and activities in animals, including man, form a continuous series from lowest to highest.

"The Animal Mind" is intended primarily as a text in comparative psychology, and it seems well adapted for this purpose; but it will also be found indispensable to all workers in the subject of animal behavior, and ought to be read extensively by physiologists.

The bibliography, consisting of 476 well-chosen titles, will be found valuable. Additional pages dealing with definitions of psychic elements as understood in human psychology would add much to the value of the book from the standpoint of the layman.

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La psychologie inconnue. Introduction et contribution a l'étude expérimentale des sciences psychiques. EMILE BOIRAC. Paris: Félix Alcan. 1908. Pp. 346.

The chief concern of this book is to rescue Mesmer's doctrine of animal magnetism from the discredit into which it has all but universally fallen and to rehabilitate it on the basis of sound experimental procedure. Largely from his own personal experiences, which include observations at sittings with Eusapia Paladino, the author is convinced that a psychic force, to be thought of on the analogies of electricity and magnetism, emanates from the human body, this force coming into evidence only under peculiarly auspicious circumstances or through persons unusually gifted in this direction. The author himself claims to be one of these fortunately endowed individuals through whom this force becomes revealed. On the basis of experiments and chance happenings, few in number he is obliged to acknowledge, but conducted, he believes, under the most rigid precautions against error, the author professes to have produced anesthesias, pricklings, contractures, hypnosis, transference of thought, movements of inanimate objects, and more of the same sort, by means of emanations from the tips of his fingers or from his body as a whole. These emanations, it is alleged, can be conducted through copper wires, can sometimes be collected, and under favorable circumstances can be transferred to other individuals by contact or even by proximity.

Such claims as these are common enough as coming from the believers in the occult sciences. The only merit that gives this volume a claim upon our attention beyond that of other writings of like order lies in the fact that the author makes professions of perpetual adherence to the most rigid precepts of experimental procedure. His discussions of general methodology and of precautionary devices to be employed in his special field are, it seems to me, unexceptionable. Moreover, we can all agree with the author that there may be unknown forces about us whose presence is as hidden as the image upon an exposed photographic plate and which, like this latent image, need their peculiar developing agencies. And certainly we all admit with him that unbelievers will be convinced of the reality of such alleged forces only when the evidence for their existence is secured after the same manner as is that which brings conviction in the realm of the orthodox sciences. But when this much is said, one may still suspect that in investigations of this kind theory and practise are as likely to get sundered as they traditionally are in the world of morals. It is, indeed, possible that there are radiations of energy from the human organism and that later demonstrations of their actuality will convict present-day skeptics of a too stubborn conservatism; it is, indeed, possible that hypnotic phenomena are occasionally produced when all traces of suggestion and of the usual mechanical means of hypnotization have been excluded; it is, indeed, possible that the failure to recognize these human radiations rests upon the fact that the few individuals who can adequately wield them come

rarely in the presence of the appropriately sensitive subject; but, notwithstanding, most of us, if, indeed, we are not wholly unsympathetic towards these views, are yet forced to preserve our intellectual integrity by maintaining a spirit of scientific caution and by believing that further careful investigations in these fields will reveal hitherto unsuspected sources of error rather than the existence of a psychic force whose still unknown qualities justify the pretentious title of the volume before us: "La psychologie inconnue."

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Plato's Psychology in its Bearing on the Development of Will. MARY HAY WOOD. London: Henry Frowde. 1907. Pp. 62.

This study is a "thesis approved, in its original form, for the degree of Master of Arts in the University of London," and is otherwise accessible as published in *Mind,* N. S., Nos. 65 and 66 (January and April, 1908).

The author does not find the notion of will as such in the writings of Plato, but pursues the exposition of his thought in quest of those complex functions which we recognize as pertaining to the will. The discussion falls under the following heads: "Introduction," pp. 3–9; "Mental Activity—Whole and Part," pp. 9–12; "Appetite," pp. 12–13; "Emotion. (*a*) θυμός, (*b*) ἔρως, (*c*) δόξα," pp. 13–36; "Thought and Reason," pp. 36–42; "The Will," pp. 42–62.

In the last section there is much of interest to the student of philosophy, whether he happens to be greatly concerned about Plato or not; for a relatively naïve thinker, that is to say a thinker who follows connections of ideas not fully stereotyped, inevitably suggests more than he actually says, because one can trace the ganglionic centers of association. Our author has pointed out many of these, which it would be useless here to mention in detail. The interpretation of Plato's thought is, on the whole, sound, though there are points on which one may differ from the author. Occasionally a positive error occurs, as *e. g.,* on p. 44, where we read of the tyrannical man that his "nature is so chaotic and diverse (ποικίλος) that he can not be said to possess a self (ἑαυτοῦ ὤν ἀκράτωρ)" referring to *Rep.* 579 C. The real meaning appears if one contrasts *Phaedr.* 256 B ἐγκρατεῖς ἑαυτῶν. The tyrannical man is not master of himself. On several points it might have been judicious to refer to some fuller discussion, seeing that they are subject to controversy. Thus, for the "demotic" or "social" virtue (pp. 51 and 54) one might refer to Archer-Hind's *Phaedo,* Appendix I., and for the δεύτερος πλοῦς (p. 53), to Appendix II., *ibid.*

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The Doctrine of Primary and Secondary Sensory Elements. BORIS SIDIS. *Psychological Review,* January and March, 1908. Pp. 44–68, 106–121.

In continuation of earlier work on hallucinations, the author here develops a theory of perception, "based on a close analysis of the normal process of perception and substantiated by observations and experiments of abnormal mental life." When an object is perceived, some of its qualities are directly present to sense. Other qualities, which do not affect any sense organ at the moment, are, nevertheless, present in some form in the percept; according to the common doctrine, they are present in the form of images. Dr. Sidis, on the contrary, holds that the manner in which they are present in perception differs entirely from the way in which they are present in a memory image, such as we get when, without having the object present to any sense at the moment, we recall it and its qualities to mind. In the percept they have a sensuousness which they lack in the image. "We see, we perceive, the hard, heavy, smooth, resistant body of ice—all the elements have alike the intensity of sensation. The hardness, the smoothness, the bodily resistance are perceived by the visual sense and are visual, but as such they, of course, differ from the sensations experienced by their appropriate sense organs, as when, for instance, the same sensations are given by touch or by muscular and kinesthetic sensations. Those muscular and tacto-motor sensations appearing as visual are not memory images, but they are actual sensations, they are *secondary* sensations; they are secondary sensory elements, which give the fullness of content to the percept having visual sensory elements as its nucleus."

The author's meaning, which in the first part of his paper appears somewhat strained and obscure, becomes clearer when he passes to his pathological evidence, which refers first of all to the facts of synesthesia —sound-photisms, light-phonisms, and the rest. In these cases, a stimulus to one sense gives rise to what must be designated as, not images, but true sensations, belonging to other senses. In normal perception, the same sort of secondary sensations occur, the only difference being that they are closely fused with the primary sensation, whereas in synesthesia they are partially dissociated. In hallucinations, the dissociation is more complete. The author brings forward a number of cases in which hallucinations of one sense are traced to abnormal irritation of another sense; these give him the clue to his theory of hallucinations, which regards them, not as centrally originated, but as excited by the stimulation of some sense organ, the primary sensations due to such stimulation being then so far dissociated from the secondary sensations as to have no conscious connection with them, or even as to drop out of consciousness altogether. Were the primary and secondary sensory elements partially fused, the result would be synesthesia; were they completely fused, the result would be normal perception. What distinguishes hallucinations from normal percepts is dissociation. "Percepts and hallucinations are of the same grain. A percept is a hallucination with

the primary nuclear sensory elements *present,* a hallucination is a 'real' percept with the primary sensory elements *absent.*"

The main point of the doctrine is thus seen to be that the genuine sensory process can be aroused either by stimulation of the appropriate sense organ, or, secondarily, by the stimulation of other sense organs, but never in any other way. It can not be *centrally* aroused. What can be centrally aroused is a memory image, and this differs absolutely from the sensory process. "The image or idea is that bloodless, shadowy, fluttering affair which can no more attain the life of a sensation than a written letter can attain the power of sound." "The image of a light does not shine, the idea of a voice does not sound, and the representation of a perfume does not smell. . . . The image, the representation, is essentially mediate, it is a mental substitute for the immediate experience of the sensation. The idea bears the same relation to the sensation as the photograph bears to the original, or rather as a symbol to the thing it represents. . . . There is not a particle of evidence to substantiate the view that ideas or images are copies of sensation in the sense of being weak sensations or 'centrally excited sensations.' There is nothing of the sensory in the idea." From these quotations it may reasonably be inferred that the author's imagery, in the Galtonian sense, is weak. But it is also clear that he is somewhat of an innovator in his definition of the term *image.* Following Galton, the image is usually defined in a descriptive way, as something like a sensation; and if an individual testifies that he is unable to call up images having this sensory quality, he is said not to have images. But the author defines "image" in dynamic or causal terms. That is an image which can be recalled by memory, which is centrally excited. The question then comes whether the image, so defined, possesses the quality of a sensation; and the author, on the basis of his own introspection, decides that it does not. The sensory tang can be aroused, he finds, by peripheral excitation, either of the sense organ appropriate to the particular sense quality aroused, or of other sense organs, but it can not be centrally aroused.

Allowance made for his use of the term *image,* the author's theory of perception seems to differ in no respect from the traditional doctrine; for when the latter speaks of a percept as a blend of sensation and images, it means by images just what the author means by secondary sensory elements. The novelty of the author's view lies in his conception of "images" or memory content, and in the sharp line which he draws between this and sensation. On this point, the reviewer's introspection is on the whole in agreement with that of the author, though he does not follow him into such artificial antitheses as the following: "Sensations have intensity, but no vividness; images or representations have vividness, but no intensity." But it must be remembered that many observers insist on the sensuous character of memory content; and no acceptable theory of memory content can be made which does not take account of these diverse introspective accounts.

In one respect, it is practically certain that the author's distinction

between percept and representation is too sharp. He would make them absolutely distinct, and would relate them to different cerebral processes and probably to the activity of separate organs in the brain. The process of representation is not in any respect a renewal of the process of perception. We do not recall past experiences of an object, but get, in memory, a new and fundamentally different kind of experience of it. But this makes it hard to see how perception of an object enables us later to recall it; if the organs concerned in the two processes are different, no "trace" or modification of the organ by the first impression would operate to make possible a representation. Memory can not be conceived as something entirely new, wholly distinct from perception; the two processes must at least overlap, and their organs be in part the same. Such a view as that recently propounded by Mr. Marshall, according to which memory recalls *part* of the perceptual experience, namely, the less sensory part—not all, but some of the cerebral organs active in perception being also active in memory—seems adequate to the introspective facts which Dr. Sidis reports, and at the same time logically consistent. And if we add to this the further supposition that the sensory part of the perceptual process *may* be recalled, with an intensity varying from zero in those whose sensory imagery is *nil* to a high degree in those who report their images to be almost equivalent to sensations, then it would seem that all the observations were sufficiently accounted for.

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JOURNALS AND NEW BOOKS

REVUE PHILOSOPHIQUE. June, 1908. *Passion du jeu et manie du jeu* (pp. 561–576): Dr. P. Sollier et G. Danville. – Beside normal passion, play appears pathologically as the equivalent of certain hysterical manifestations, of constitutional morbidness, and of moral depression. *Les sens esthétiques (2e et dernier article)* (pp. 577–598): Ch. Lalo. – Forms and sounds are the only things for which we have both receptive and producing organs, so esthetic sensations, being both active and passive, can only be given by sight and hearing. *Responsabilité ou réactivité?* (pp. 599–621): Dr. Laupts. – The principle of social reaction, analogous to that of organic reaction, should replace the metaphysical notion of free-will in the legal treatment of crime. *La curiosité scientifique* (pp. 622–638): Jules Sageret. – All human actions arise from curiosity, interested or disinterested, and division as to scientific problems can only cease when curiosity concerning them shall cease. *Revue critique: L'aphasie de Broca:* Goblot. *Analyses et comptes rendus.* Bazaillas, *Musique et inconscience:* Lionel Dauriac. J. de Gaultier, *La dépendence de la morale et l'indépendence des mœurs:* Fr. Paulan. Lagorgette, *Le fondement du droit et de la morale:* G.-L. Duprat. Mazarella, *Les types sociaux et le droit:* J. Lagorgette. Lapie, *La femme dans la famille:* G.-L. Duprat. *Revue des périodiques étrangers.*

Dresser, Horatio W. *The Philosophy of the Spirit. A Study of the Spiritual Nature of Man and the Presence of God, with a Supplementary Essay on the Logic of Hegel.* New York & London: G. P. Putnam's Sons, The Knickerbocker Press. 1908. Pp. xiv + 545.

Poulton, Edward Bagnall. *Essays on Evolution, 1889–1907.* Oxford: The Clarendon Press. 1908. Pp. xlviii + 479.

Spir, A. *Denken und Wirklichkeit. Versuch einer Erneuerung der kritischen Philosophie.* Vierte Auflage, mit Titeilbild nebst einer Skizze über des Autors Leben und Lehre von Helene Claparède-Spir. Leipzig: Johann Ambrosius Barth. 1908. Pp. xxx + 547.

NOTES AND NEWS

We take the following from a brief account of Lord Kelvin's philosophy contributed by Sir Oliver Lodge to *Nature:* "Whereas it had been hoped to explain force in terms of latent motion, Lord Kelvin in later years sought to expound motion in terms of force, giving up the kinetic unification of the material universe in favour of a conception more arbitrary and descriptive, and permitting himself to regard force as perhaps an equally fundamental, perhaps a more fundamental, conception than motion. It may be that philosophers will concede the (to me) somewhat improbable proposition that an explanation in terms of force and action-at-a-distance will be as satisfactory as an elucidation in terms of motion and a continuous medium. To Lord Kelvin it would appear that both solutions were equally satisfactory, and that it was only a question of which was the most tractable. In any case it is notewothy that he took up so clear and definite a position; it is the key to much of his recent work, and to the difficulties which he felt in accepting some of the hypotheses which are a natural consequence of the electrical theory of matter and of some of the facts of radio-activity. It now seems not unnatural that he should have sought to express and explain these great results otherwise. His attitude is both coherent and reasonable; though I would urge that most theoretical advance and discovery (in the hands of Maxwell and others) has been along the continuous and medium line, which, if not the line of ultimate explanation, is at any rate that of achievement. At the same time, it must be admitted that, if a longitudinal impulse is transmitted by an incompressible medium at an infinite pace, the process becomes barely distinguishable from action at a distance, through a force varying according to a specified law. Or—putting what is virtually the same thought in another way—the influence of an electron, or matter-unit, whose field of force extends infinitely in all directions, need not be conceived as limited by some arbitrary boundary beyond which things can be said to be at a distance from it. . . . The conclusion of the discussion on the constitution of the atom may be summed up thus: The internal energy of Lord Kelvin's model atom is static or potential. The

internal energy of the hypothetical atom at which others are working is kinetic. The disintegration of radium in the former case is comparable to the explosion of an unstable chemical compound, like gun-cotton. In the latter case it must be represented by something more akin to the flying to pieces of a single rapidly spinning unit, such as a fly-wheel. And so for the present the matter stands."

THE degree of D. Sc. *honoris causa* was conferred on Professor James Ward, at the Encaenia, at Oxford, on June 24. In presenting him for the degree, Professor Love spoke as follows: Inter Psychologos nemo clarior est quam Jacobus Ward, qui Psychologiam, cuius scientiæ proprium sit singulorum sensus tractare, non ex alia scientia pendere sed sui iuris esse constanter asseverat: çuius in ore semper est vox illa "Ego sum. Nihil mihi hoc verius?" Qui vir ita priorum repertis usus est ut erroribus vitatis longius progrederetur: idem si quid boni uspuam invenisset non aspernatus novam, quæ latissime pateret, rationem excogitavit et necessitudinem quandam inter mentem nostram et rerum naturam intercedere docuit. Psychologiam etiam cum aliis scientiæ generibus artissime cohærere monstravit et omnibus qui cognoscendi ratio quæ sit investigant vel hominum moribus student utilissimam esse contendit. Neque ei satis erat huic scientiæ novum quasi fundamentum præbere, sed multorum diverso in genere philosophorum opiniones reprehendit: quæ omnia in libro paucos abhinc annos edito pervulgata cum iis qui rerum naturæ investigandæ operam dant tum iis qui philosophiæ potissimum incumbunt maxime profuerunt.

THE third international congress on the history of religions will be held at Oxford from September 15–18 next. Professor E. B. Taylor, F.R.S., is the honorary president; Sir A. C. Lyall, the president, and Professor Percy Gardner, the chairman of the local committee. The business of the congress will be conducted in nine sections, and there will be general meetings for papers and lectures of wide importance, as well as meetings of sections. In addition to the addresses by the president and by the presidents of sections, numerous important papers will be read. English, French, German, and Italian will be recognized as official languages. Offers of papers should be sent to the honorary secretaries, Dr. J. Estlin Carpenter, 109 Banbury Road, Oxford, and Dr. L. R. Farnell, 191 Woodstock Road, Oxford.